

PRZEDSIĘBIORSTWO HANDLOWE EXPORT - IMPORT

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# **#03056 RP-FX002A**

## **USER'S MANUAL**

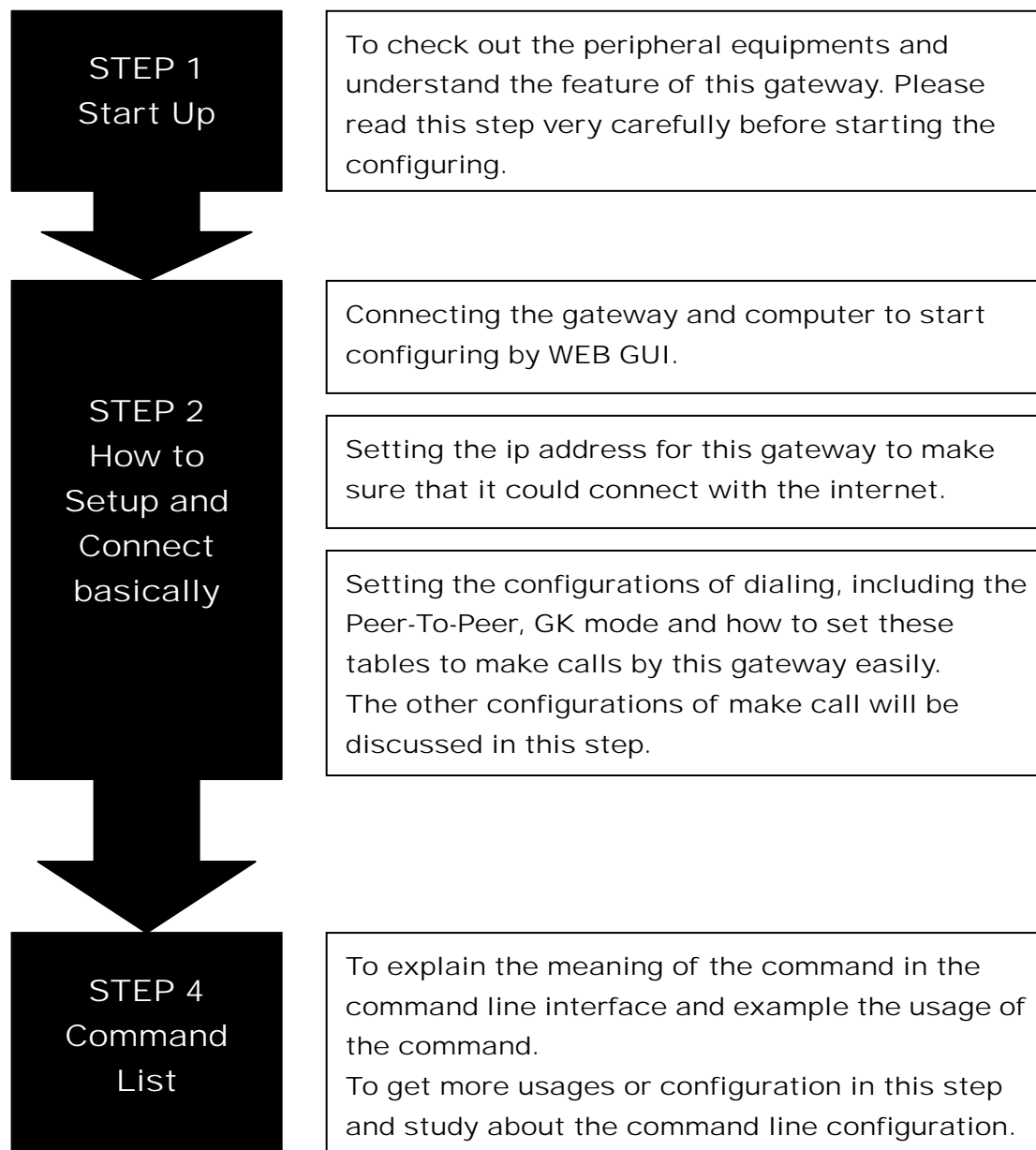
# ***FXO GATEWAY***

## ***User Manual***

<b>STEPS IN CONFIGURATION</b>	<b>2</b>
<b>1. START UP</b>	<b>3</b>
<i>1.1 Introduction</i>	3
<i>1.2 Features and specification</i>	3
<i>1.3 Accessories and equipment</i>	4
<i>1.4 Appearance</i>	5
<i>1.4.1 3802</i>	5
<i>1.4.2 3804</i>	6
<i>1.4.3 3806</i>	6
<b>2. HOW TO SETUP AND CONNECT BASICALLY</b>	<b>9</b>
<i>2.1 System Requirement</i>	9
<i>2.2 IP Environment Setting</i>	10
<i>2.2.1 For Windows 2000/NT</i>	10
<i>2.3 Network configurations in your gateway</i>	12
<i>2.3.1 Static ip address</i>	14
<i>2.3.2 DHCP mode</i>	15
<i>2.3.3 PPPoE mode</i>	16
<i>2.4 Making a VoIP Call</i>	17
<i>2.4.1 Configure the gateway into the Peer-to-Peer mode</i>	18
<i>2.4.2 Configure the gateway into the GK routed mode</i>	20
<i>2.4.2.1 The type in GK routed mode</i>	21
<b>3. COMMAND LIST</b>	<b>23</b>
<i>3.1 Hyper Terminal Setting</i>	23
<i>3.2 Command List</i>	26
<i>3.2.1 [help] command</i>	26
<i>3.2.2 [quit] command</i>	26
<i>3.2.3 [debug] command</i>	27
<i>3.2.4 [reboot] command</i>	27

3.2.5 <i>[flash] command</i>	28
3.2.6 <i>[commit] command</i>	28
3.2.7 <i>[ifaddr] command</i>	28
3.2.8 <i>[time] command</i>	31
3.2.9 <i>[ping] command</i>	31
3.2.10 <i>[greetrd] command</i>	31
3.2.11 <i>[pbook] command</i>	34
3.2.12 <i>[pppoe]</i>	37
3.2.13 <i>[ddns] command</i>	37
3.2.14 <i>[sysconf] command</i>	39
3.2.15 <i>[h323] command</i>	43
3.2.16 <i>[voice] command</i>	46
3.2.17 <i>[tos] command</i>	48
3.2.18 <i>[tone] command</i>	49
3.2.19 <i>[support] command</i>	50
3.2.20 <i>[group] command</i>	51
3.2.21 <i>[bureau] command</i>	53
3.2.22 <i>[prefix] command</i>	54
3.2.23 <i>[rom] command</i>	55
3.2.24 <i>[passwd] command</i>	57

## Steps in configuration



# 1. Start Up

## 1.1 Introduction

The FXO gateway provides voice/fax service over IP network with H.323 v3 protocol. By connecting to your existing ADSL or cable modem service, which allows the use of a single, network for voice and fax services with consequent saving in network infrastructure and greatly reduced telephone charges. Ideal solution for providing low cost communications between headquarters and branch offices in the world, as well as for SOHO and office telephony applications.

FXO GateWay provides analog lines to connect local PSTN/PTT interface (FXO), and converts voice/fax signal onto IP network. The management feature is via RS-232C COM port and TELNET.

## 1.2 Features and specification

### Features

- ITU-T H.323 v3 compliance
- Automatically Gatekeeper Discovery
- Peer-to-Peer mode (non-Gatekeeper)
- Support auto-attendant (2nddial Tone / Voice greeting)
- Dimensions : 221mm(W)\*42mm(H)\*217mm(L)
- Line hunting
- 2/4/6 RJ-11 FXO ports
- E.164 (Telephone Number Plan)
- DTMF dialing
- DTMF detection/generation
- TFTP software upgrade
- Remote configuration/reset via Telnet
- LED indication for system status
- LAN interface : One RJ-45 connector of 10Base-T
- Microsoft Netmeeting v3.0 compatible
- Support static IP and DHCP

- QoS by ToS (Type Of Service)
- SNTP (Simple Network Time Protocol)
- Security: Password setting

#### **Audio feature**

- Codec -- G.711 a/ $\mu$  law, G.723.1 (6.3K/bps), G.729A (Optional)
- VAD (Voice Activity Detection), CNG (Comfort Noise Generate)
- G.168/165-compliant adaptive echo cancellation
- Dynamic Jitter Buffer
- Bad Frame Interpolation
- Call Transfer (H.450.2)
- Call Forward (H.450.3)
- Call Hold (H.450.4)
- Gain Settings
- Provide Call Progress Tone: Dial tone, busy tone, call-holding tone and ring-back tone

#### **Management Features:**

Two easy ways for system configuration

- Console port: RS-232C port
- TELNET
- HTTP Brower (e.g. Internet Explorer)

## **1.3 Accessories and equipment**

- ◆ The voice gateway in 2/4/6 FXO ports models and only one RJ-45 connector (WAN).
- ◆ The AC adapter.
- ◆ The CD of user manual.
- ◆ The connection cable in RS-232 interface.

## 1.4 Appearance

### 1.4.1 2FXO

*Front panel: The LED light provides system message of 2FXO.*



**Power :** Light on means 2FXO is power on.

**L1-L2 :** Light on means the line is in use.

**Link :** Light on means 2FXO is connected to the network correctly.

**Act :** LED should be light on and in flash display when data is transmitting.

**Ready :** 1. Light on and in slow flash means 2FXO is in operation mode.

**Status :** 1. Light on means 2FXO successfully registered to Gatekeeper when it is set as Gatekeeper Mode.  
 2. LED flash means 2FXO is not registered to Gatekeeper when it is set as Gatekeeper Mode.  
 3. Or when 2FXO is in downloading mode, LED should be flash as well.  
 4. Light off means 2FXO is in Peer-to-Peer Mode.

*Back panel:*





### 1.4.2 4FXO

*Front panel: The LED light provides system message of FXO GateWay.*



**Power** : Light on means FXO GateWay is power on.

**L1-L4** : Light on means the line is in use.

**Link** : Light on means FXO GateWay is connected to the network correctly.

**Act** : LED should be light on and in flash display when data is transmitting.

**Ready** : 1. Light on and in slow flash means FXO GateWay is in operation mode.

**Status** : 1. Light on means FXO GateWay successfully registered to Gatekeeper when it is set as Gatekeeper Mode.

2. LED flash means FXO GateWay is not registered to Gatekeeper when it is set as Gatekeeper Mode.

3. Or when FXO GateWay is in downloading mode, LED should be flash as well.

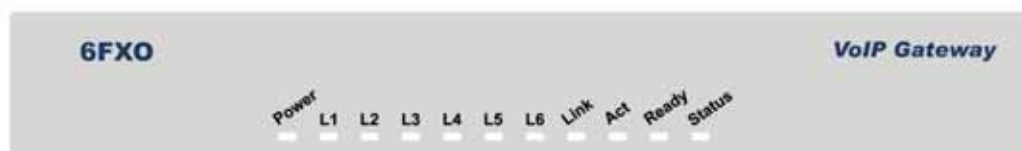
4. Light off means FXO GateWay is in Peer-to-Peer Mode.

*Back panel:*



### 1.4.3 6FXO

*Front panel: The LED light provides system message of 6FXO.*



**Power** : Light on means 6FXO is power on.

**L1-L6** : Light on means the line is in use.

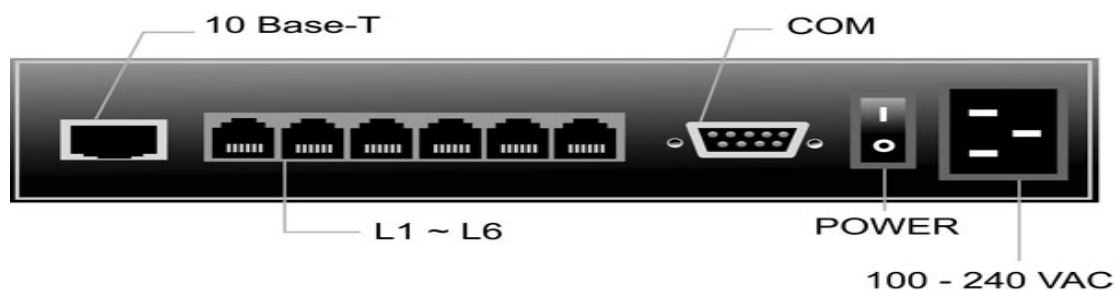
**Link** : Light on means 6FXO is connected to the network correctly.

**Act** : LED should be light on and in flash display when data is transmitting.

**Ready** : 1. Light on and in slow flash means 6FXO is in operation mode.

**Status** : 1. Light on means 6FXO successfully registered to Gatekeeper when it is set as Gatekeeper Mode.  
2. LED flash means 6FXO is not registered to Gatekeeper when it is set as Gatekeeper Mode.  
3. Or when 6FXO is in downloading mode, LED should be flash as well.  
4. Light off means 6FXO is in Peer-to-Peer Mode.

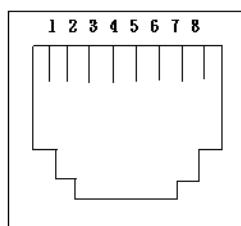
*Back panel:*



## 1. Ethernet Port

**LAN/WAN: 10/100 Base-T;** RJ-45 socket, complied with ETHERNET 10/100base-T.

The pin-out is as following:



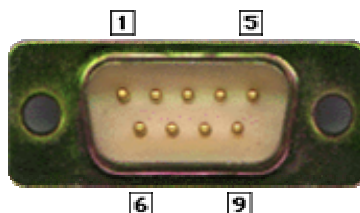
PIN 1, 2: Transmit

PIN 3, 6: Receive

## 2. COM:

RS232 console port (DB-9pin **male** connector)

**Note:** use straightforward cable to connect to your computer.



PINOUTS

Pin	Name	Dir	Description
2	RXD	←	Receive Data
3	TXD	→	Transmit Data
5	GND	—	System Ground

## 3. TEL:

RJ-11 connector, FXS interface is for connecting the analog phone sets or trunk line of PABX.

## 4. LINE:

RJ-11 connector, FXO interface is for connecting the extension line of PABX or PSTN Line.

## 5. 12V DC:

Input AC 100V~120V;output DC12V.

## **2. How to Setup and connect basically**

### **2.1 System Requirement**

1. One PC (a) Pentium 100 or above, 64 RAM, Windows 98 or above.  
(b) Ethernet card or COM port
2. One standard straightforward RS-232 cable (female connector to Gateway side).
3. PBX extension Lines or PSTN Lines.
4. Software tools (a) Hyper Terminal, TELNET, Web Browser.  
(b) Gatekeeper (optional).

## **2.2 IP Environment Setting**

User must prepare a valid IP address, complied with IP Network, for Gateway's proper operation.

For testing the validation of chosen IP address, using the same IP configuration in other PC or Notebook, and then try to connect to Public Internet (go to well-known website, receive Internet mail, or ping a specific public IP address). If it works, use the same IP address and network configuration for Gateway.

Please follow up the step for the configuration of your computer or notebook.

### **2.2.1 For Windows 2000/NT**

Please make sure that the network interface of your computer is working fine and the **cross over line** (RJ-45) is connecting with the computer correctly or you could use a **hub** to connect with your computer and this gateway. Turn on

your computer and configure the network parameter as follow:

- 1 Go to the **start** menu and enter the **setting** area. Click **control panel**.
- 2 Enter the network configuration.

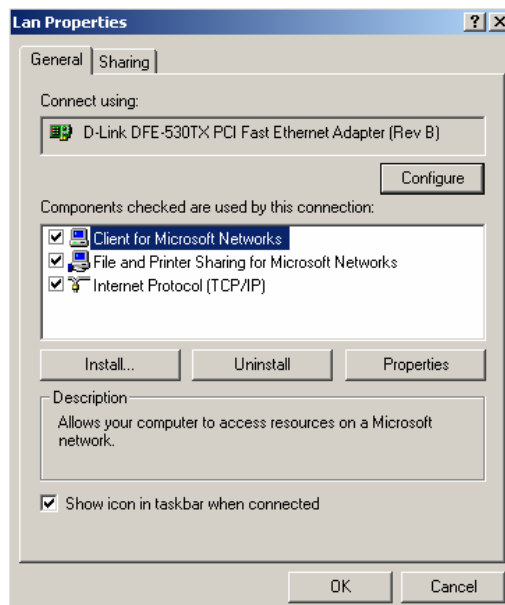


Figure 2.1: Network Configuration

- 3 Select the **Property** of the LAN card.
- 4 Setup the ip address, subnet mask and default gateway as below:

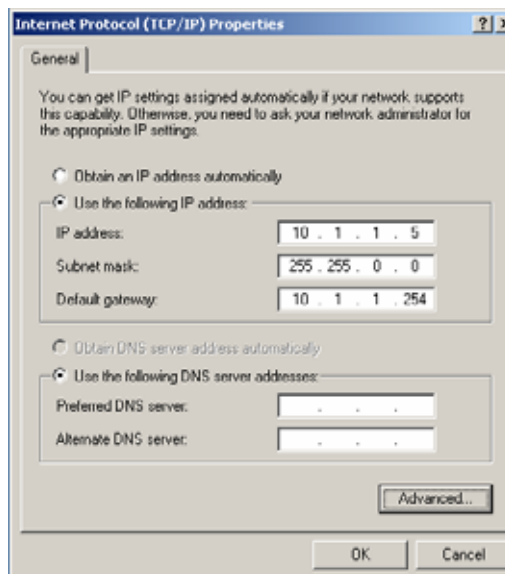


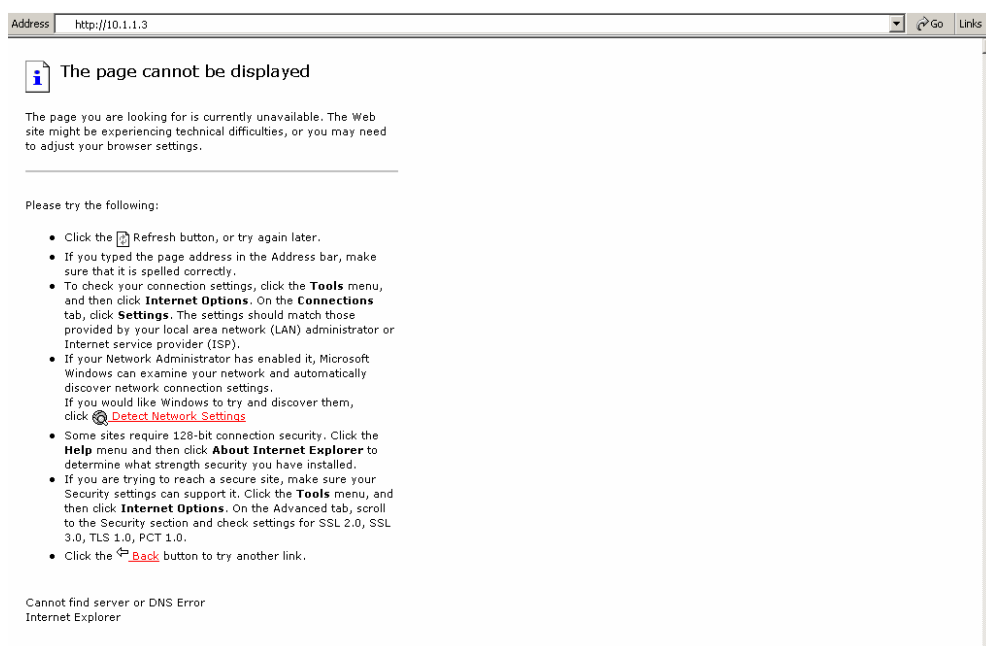
Figure 2.2: Configure the network

5 Click OK after you finished the network setup.

The default ip address, netmask and default gateway address of the gateway is 10.1.1.3, 255.255.0.0, 10.1.1.254.

## 2.3 Network configurations in your gateway

1 Key in the ip address of the gateway (http://10.1.1.3) with the browser



- 2 After key in the ip address, you have to enter the user name and password to enter the WEB configuration. (Username: root ; No password)

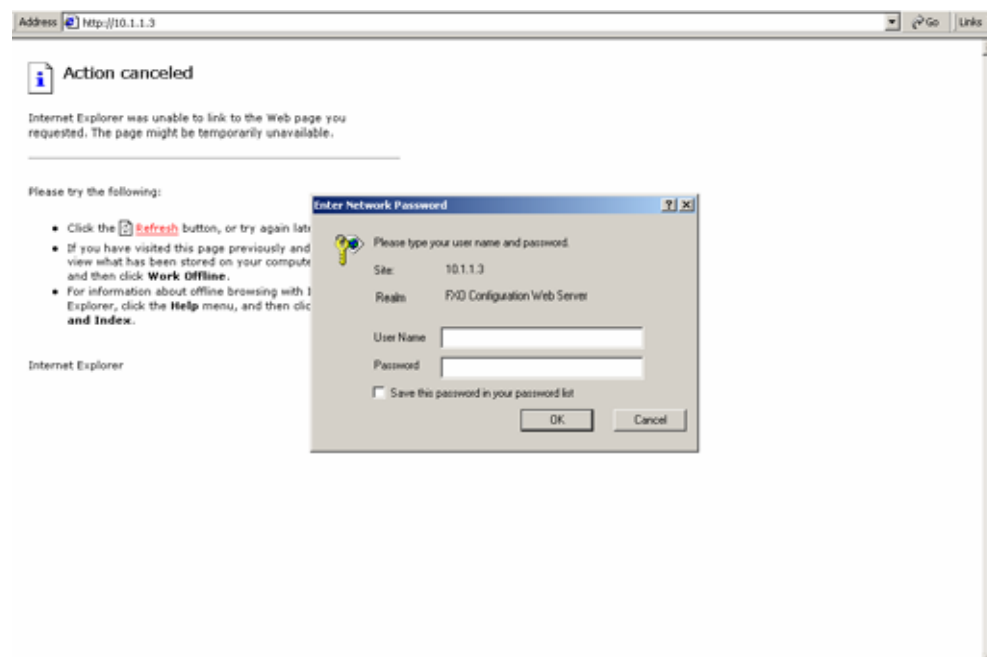


Figure 2.3: Login the username and password

- 3 You will enter the main page of the configuration after key in the login name and password correctly:

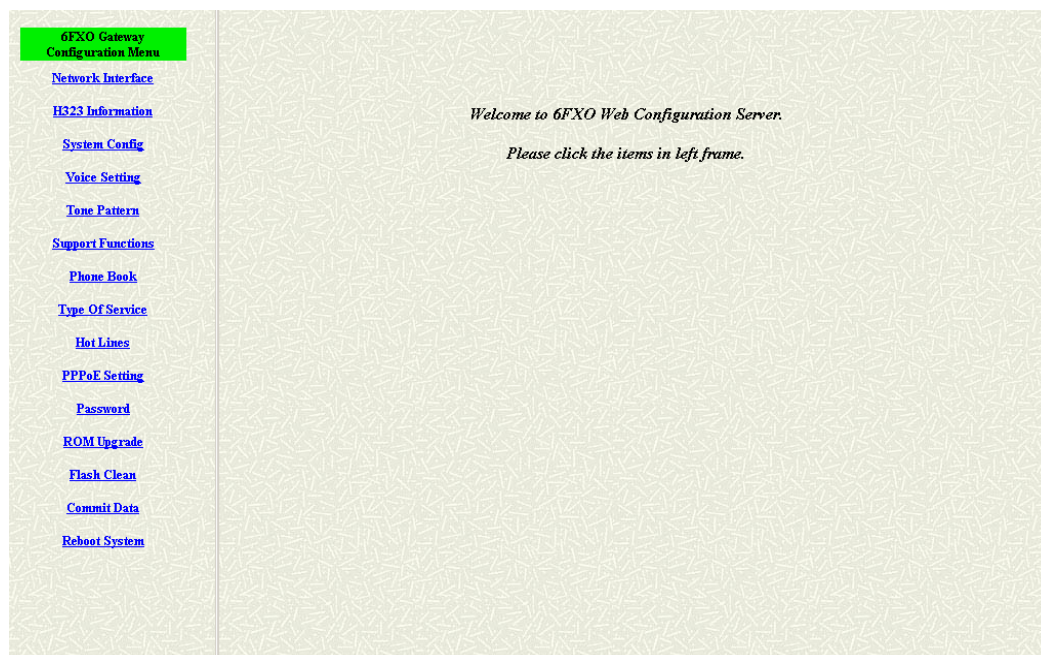


Figure 2.4: The main WEB configuration



4 Press the **Network Interface** to configure the networking of your gateway:

6FXO Gateway Configuration Menu	
<a href="#">Network Interface</a>	<b>Network Interface</b>
<a href="#">H323 Information</a>	IP Address: 10 . 1 . 1 . 3
<a href="#">System Config</a>	Subnet Mask: 255 . 255 . 0 . 0
<a href="#">Voice Setting</a>	Default routing gateway: 10 . 1 . 1 . 254
<a href="#">Tone Pattern</a>	DHCP: <input type="radio"/> enable <input checked="" type="radio"/> disable
<a href="#">Support Functions</a>	SNTP: <input type="radio"/> enable <input checked="" type="radio"/> disable
<a href="#">Phone Book</a>	SNTP Server Address: 210 . 59 . 157 . 1
<a href="#">Type Of Service</a>	GMT: 8
<a href="#">Hot Lines</a>	IP Sharing: <input type="radio"/> enable <input checked="" type="radio"/> disable
<a href="#">PPPoE Setting</a>	IP Sharing Server Address: 210 . 59 . 163 . 198
<a href="#">Password</a>	<input type="button" value="OK"/>
<a href="#">ROM Upgrade</a>	
<a href="#">Flash Clean</a>	
<a href="#">Commit Data</a>	
<a href="#">Reboot System</a>	

Figure 2.5: The Network Interface

### 2.3.1 Static ip address

1 Please get the correct ip address, netmask and default gateway address from your ISP first. Press the OK button if you finished.

6FXO Gateway Configuration Menu	
<a href="#">Network Interface</a>	<b>Network Interface</b>
<a href="#">H323 Information</a>	IP Address: 210 . 59 . 163 . 160
<a href="#">System Config</a>	Subnet Mask: 255 . 255 . 255 . 128
<a href="#">Voice Setting</a>	Default routing gateway: 210 . 59 . 163 . 254
<a href="#">Tone Pattern</a>	DHCP: <input type="radio"/> enable <input checked="" type="radio"/> disable
<a href="#">Support Functions</a>	SNTP: <input type="radio"/> enable <input checked="" type="radio"/> disable
<a href="#">Phone Book</a>	SNTP Server Address: 210 . 59 . 157 . 1
<a href="#">Type Of Service</a>	GMT: 8
<a href="#">Hot Lines</a>	IP Sharing: <input type="radio"/> enable <input checked="" type="radio"/> disable
<a href="#">PPPoE Setting</a>	IP Sharing Server Address: 210 . 59 . 163 . 198
<a href="#">Password</a>	<input type="button" value="OK"/>
<a href="#">ROM Upgrade</a>	
<a href="#">Flash Clean</a>	
<a href="#">Commit Data</a>	
<a href="#">Reboot System</a>	

Figure 2.5: Configure the static ip address

2 Press the commit if you finish the configuration.

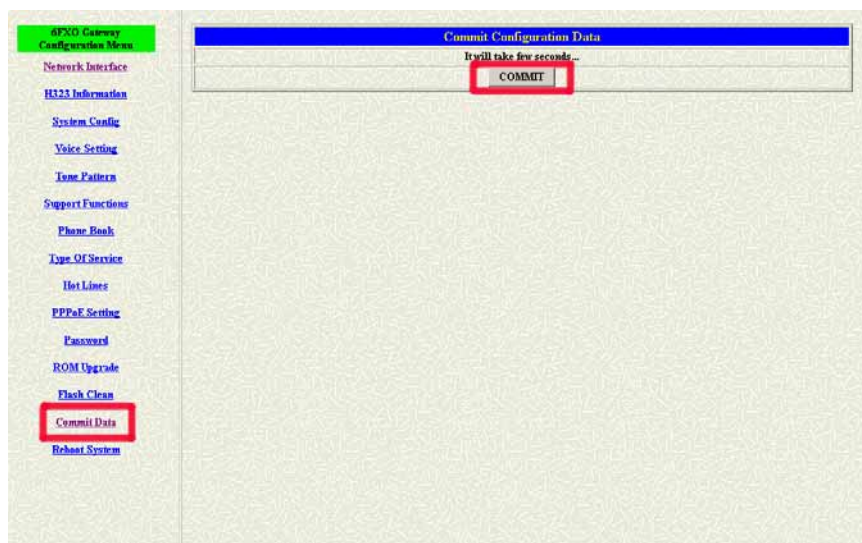


Figure 2.6: Commit the data

3 Press the reboot if you want the configuration executed.



Figure 2.7: Reboot the system

## 2.3.2 DHCP mode

- 1 Enable the DHCP if you are using the cable modem or DHCP server.

The screenshot shows the '6FXO Gateway Configuration Menu' on the left and the 'Network Interface' configuration form on the right. The form contains the following fields:

Network Interface	
IP Address:	10 . 1 . 1 . 3
Subnet Mask:	255 . 255 . 0 . 0
Default routing gateway:	10 . 1 . 1 . 254
DHCP:	<input checked="" type="radio"/> enable <input type="radio"/> disable
SNTP:	<input type="radio"/> enable <input checked="" type="radio"/> disable
SNTP Server Address:	210 . 59 . 157 . 1
GMT:	8
IP Sharing:	<input type="radio"/> enable <input checked="" type="radio"/> disable
IP Sharing Server Address:	210 . 59 . 163 . 198
OK	

Figure 2.8: Enable the DHCP function

- 2 Please commit the data and reboot the machine after you enable the DHCP function.

### 2.3.3 PPPoE mode

- 1 Press the PPPoE Configuration and put the info of the PPPoE account and password in the configuration table.



6FXO Gateway Configuration Menu		PPPoE Device Information and Configuration	
<a href="#">Network Interface</a>		Device:	<input checked="" type="radio"/> On <input type="radio"/> Off
<a href="#">H323 Information</a>		User Name:	1234@hine.net
<a href="#">System Config</a>		Password:	*****
<a href="#">Voice Setting</a>		Reboot After Remote Host Disconnection:	<input checked="" type="radio"/> On <input type="radio"/> Off
<a href="#">Tone Pattern</a>		IP:	
<a href="#">Support Functions</a>		Destination Host:	
<a href="#">Phone Book</a>		Domain Name Server:	
<a href="#">Type Of Service</a>		Subnet Mask:	
<a href="#">Hot Lines</a>		Authenticate:	
<a href="#">PPPoE Setting</a>		Protocol:	
<a href="#">Password</a>		Device:	
<a href="#">ROM Upgrade</a>		<input type="button" value="OK"/>	
<a href="#">Flash Clean</a>			
<a href="#">Commit Data</a>			
<a href="#">Reboot System</a>			

Figure 2.9: Configure the PPPoE function

- 2 Please commit the data and reboot the machine after you finished the configuration of PPPoE.

## 2.4 Making a VoIP Call

There are two modes that you could configure the gateway for making VoIP calls. One is the Peer-to-Peer mode, another is GK routed mode. The configurations and functions are different. Please make sure about the mode you want and follow up the step to configure your gateway.

## 2.4.1 Configure the gateway into the Peer-to-Peer mode

- 1 Enter the H323 Configuration table and change the mode to Peer-to-Peer.

H323 Configuration	
Mode:	<input type="radio"/> GK routed <input checked="" type="radio"/> Direct
Gatekeeper IP Address:	10 . 1 . 1 . 2
Gateway Type:	<input checked="" type="radio"/> Gateway <input type="radio"/> Terminal
Registered Prefix:	100
Registered Alias:	3806
Gatekeeper Discovery:	<input type="radio"/> enable <input checked="" type="radio"/> disable
Gatekeeper ID:	GK
RTP Port:	16384
Time To Live (TTL):	60
Gatekeeper finding port:	1718
RAS Port:	1719
Response Timeout:	5
Connection Timeout:	200
OK	

Figure 2.10: Configure the Peer-to-Peer mode

- 2 Press the OK button which is on the bottom of this page to save the configuration.
- 3 Enter the Phone Book configuration table and configure the name, ip address and phone number of the destination.

**6FXO Gateway Configuration Menu**

- [Network Interface](#)
- [H323 Information](#)
- [System Config](#)
- [Voice Setting](#)
- [Tone Pattern](#)
- [Support Functions](#)
  - Phone Book**
- [Type Of Service](#)
- [Hot Lines](#)
- [PPPoE Setting](#)
- [Password](#)
- [ROM Upgrade](#)
- [Flash Clean](#)
- [Commit Data](#)
- [Reboot System](#)

Phone Book			
Index	Name	IP_Address	e164

**New Record**

Index  Name  IP Address  .  .  .  E164 No.

Figure 2.11: Phone Book

### 【Example】

**6FXO Gateway Configuration Menu**

- [Network Interface](#)
- [H323 Information](#)
- [System Config](#)
- [Voice Setting](#)
- [Tone Pattern](#)
- [Support Functions](#)
  - Phone Book**
- [Type Of Service](#)
- [Hot Lines](#)
- [PPPoE Setting](#)
- [Password](#)
- [ROM Upgrade](#)
- [Flash Clean](#)
- [Commit Data](#)
- [Reboot System](#)

Phone Book			
Index	Name	IP_Address	e164

**New Record**

Index  Name  IP Address  .  .  .  E164 No.

Figure 2.12: The example of Phone Book configuration

This is the first record of Phone Book. So the index is **1**

The name of the destination: **test**

The E164 number (phone number) of the destination: **123**

The ip address of the destination: **10.1.1.100**

- 4 Press the “Add Data” button when you finished, and the new table will display on the first index if you press the Phone Book configuration button.

The screenshot shows the '6FXO Gateway Configuration Menu' on the left sidebar. The main area displays the 'Phone Book' configuration. A table with the following data is shown:

Index	Name	IP_Address	e164
1	test	10.1.1.100	123

Below the table is a 'New Record' form with the following fields and buttons:

Index:  Name:  IP Address:  .  .  .  E164 No.:

Buttons:

Figure 2.13: To show the Phone Book record

- 5 Please Commit it and Reboot the system if the configuration is finished.

## 2.4.2 Configure the gateway into the GK routed mode

- 1 Enter the H323 Configuration table and change the mode from Peer-to-Peer to GK routed. To change the GK information from your service provider (Ex: The Gatekeeper IP, Registered Prefix and Registered Alias).



H323 Configuration	
Mode:	<input checked="" type="radio"/> GK routed <input type="radio"/> Direct
Gatekeeper IP Address:	10 . 1 . 1 . 250
Gateway Type:	<input checked="" type="radio"/> Gateway <input type="radio"/> Terminal
Registered Prefix:	100
Registered Alias:	3806
Gatekeeper Discovery:	<input type="radio"/> enable <input checked="" type="radio"/> disable
Gatekeeper ID:	GK
RTP Port:	16384
Time To Live (TTL):	60
Gatekeeper finding port:	1718
RAS Port:	1719
Response Timeout:	5
Connection Timeout:	200
OK	

Figure 2.14: Configure the GK info

- 2 Press the OK button which is on the bottom of this page to save the configuration.

RTP Port:	16384
Time To Live (TTL):	60
Gatekeeper finding port:	1718
RAS Port:	1719
Response Timeout:	5
Connection Timeout:	200
OK	

Figure 2.15: Press OK to save the data

- 3 Press the Commit Data and Reboot System buttons when you finished the configuration.

### 2.4.2.1 The type in GK routed mode

There are two types in the GK routed mode you could choose. One is Gateway type and another is Terminal type. There are some different functions, applications and configurations between the Gateway type and Terminal type.



In FXO series gateway, the only difference between the Gateway and Terminal type is for registering on the Cisco GK. The Terminal type is needed if the endpoints want to register on the Cisco GK successfully. But all the configuration and function is the same if you set the gateway in Gateway or Terminal type.

## 3. Command List

### 3.1 Hyper Terminal Setting

A terminal emulator is needed when using RS-232 port to configure Gateway. There are kinds of terminal emulator software. Here, we use Microsoft HyperTerminal to depict how to set up terminal emulator:

1. Execute the *Hyper Terminal* program, and then the following windows will pop-up on the screen. (START – Program files – Accessories – Communication – Hyper Terminal)

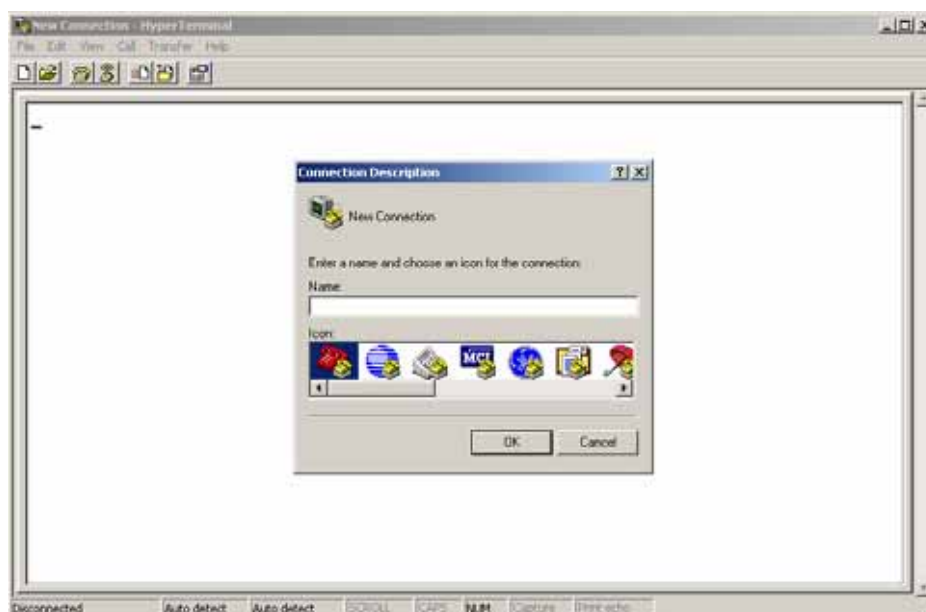


Figure 3.1: Hyper Terminal

2. Define a name such as voip for this new connection.



Figure 3.2: Edit the name of the connection

3. After pressing OK button, the next window appear, and then choose **COM1/2 Port**, which you are going to use.



Figure 3.3: Pick up the right interface to use

4. Configure the COM Port Properties as following:
  - ◆ Bits per second: 9600

- ◆ Flow control: None

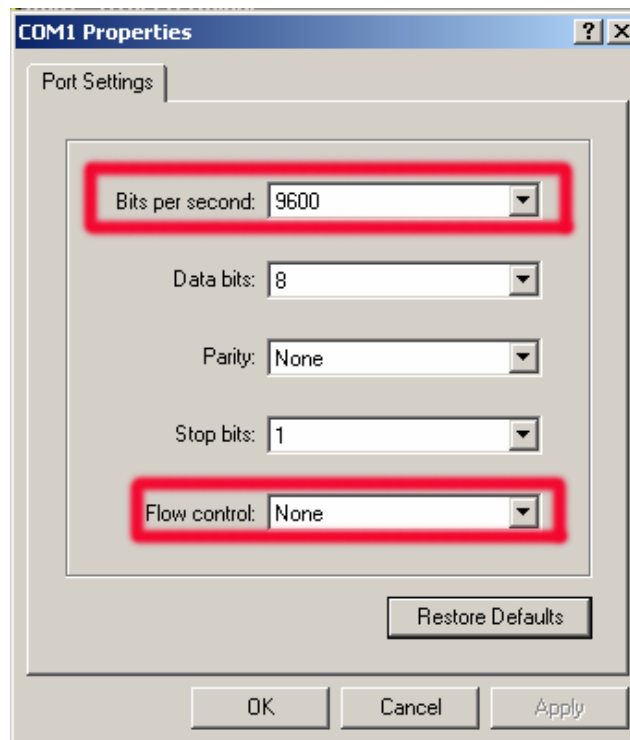


Figure 3.4: Configure the right Bps and control

5. Press 'OK' button, and then start to configure Gateway.

## 3.2 Command List

### 3.2.1 [help] command

Type **help** or **man** or **?** to list all the available command.

---

*usr/config\$ ?*

<i>help</i>	<i>help/man/? [command]</i>
<i>quit</i>	<i>quit/exit/close</i>
<i>debug</i>	<i>show debug message</i>
<i>reboot</i>	<i>reboot local machine</i>
<i>flash</i>	<i>clean configuration from flash rom</i>
<i>commit</i>	<i>commit flash rom data</i>
<i>ifaddr</i>	<i>internet address manipulation</i>
<i>time</i>	<i>show current time</i>
<i>ping</i>	<i>test that a remote host is reachable</i>
<i>greetrdr</i>	<i>Greeting voice and Disconnect tone Record mode</i>
<i>pbook</i>	<i>Phonebook information and configuration</i>
<i>pppoe</i>	<i>PPPoE stack manipulation</i>
<i>sysconf</i>	<i>System information manipulation</i>
<i>h323</i>	<i>H.323 information manipulation</i>
<i>voice</i>	<i>Voice information manipulation</i>
<i>gk</i>	<i>H.323 gatekeeper manipulation</i>
<i>tos</i>	<i>IP Packet ToS (Type of Service)values</i>
<i>tone</i>	<i>Setup of call progress tones</i>
<i>support</i>	<i>Special Voice function support manipulation</i>
<i>group</i>	<i>Grouping setting information and configuration</i>
<i>bureau</i>	<i>Bureau line information manipulation</i>
<i>prefix</i>	<i>Prefix information manipulation</i>
<i>rom</i>	<i>ROM file update</i>
<i>passwd</i>	<i>Password setting information and configuration</i>

*usage: help [command]*

---

### 3.2.2 [quit] command

Type **quit** will quit the FXO GateWay configuration mode. And turn back to login prompt.

---

```
usr/config$ quit
```

```
Disconnecting...
```

```
login:
```

---

Note: It is recommended that type the “**quit**” command before you leave the console. If so, FXO GateWay will ask password again when next user connects to console port.

### 3.2.3 [debug] command

Open debug message will show up specific information while FXO GateWay is in operation. After executing the debug command, it should execute command **debug -open** as well. One example is demonstrated below.

```
usr/config$ debug -add h323 vp
```

```
usr/config$ debug -open
```

---

Parameters Usage:

-status	Display the enabled debug flags.
-add	Add debug flag.
	-- h323 : h323 related information
	-- vp : voice related information
-delete	Remove specified debug flag.
-open	Start to show debug messages.
-close	Stop showing debug messages.

### 3.2.4 [reboot] command

After **commit** command, type **reboot** to reload FXO GateWay in new configuration. The procedure is as below:

```
usr/config$ reboot
```

```
Attached TCP/IP interface to cpm unit 0
```

```
Attaching interface lo0...done
```

```
AC4804[0] is OK
```

```
AC4804[1] is OK
```

```
AC4804[2] is OK
```

---

*Successful*

*Initialize OSS libraries...OK!*

*open stack successful*

*cmInitialize succeed!*

*GK mode selected.*

*login:*

---

### 3.2.5 [flash] command

This command will clean the configuration stored in the flash rom and reboot FXO GateWay in factory default setting.

Parameter Usage:

-clean            clean all the user-defined value, and reboot FXO GateWay in factory default mode.

*Note: It is recommended that use “flash –clean” after application firmware id upgraded.*

**Warning:** Once users execute **flash –clean**, all the configurations of FXO GateWay will be cleaned. This can only be executed by user who log in with **root**

### 3.2.6 [commit] command

Save changes after configuring the FXO GateWay.

-----  
*usr/config\$ commit*

*This may take a few seconds, please wait....*

*Commit to flash memory ok!*

*usr/config\$*

---

*Note: Users should use **commit** to save modified value, or they will not be activated after system reboot.*

### 3.2.7 [ifaddr] command

Configure and display FXO GateWay network information.

---

*usr/config\$ ifaddr*

*LAN information and configuration*

*Usage:*

*ifaddr [-print][/-dhcp used][/-sntp mode [server]]*

*ifaddr [-ipsharing used [diceAddr]][-cmcenter ip address]*

*ifaddr [-ip ipaddress] [-mask subnetmask] [-gate defaultgateway]*

*-print      Display LAN information and configuration.*

*-ip          Specify ip address.*

*-mask       Set Internet subnet mask.*

*-gate       Specify default gateway ip address*

*-dhcp       Set DHCP client service flag (On/Off).*

*-sntp       Set SNTP server mode and specify IP address.*

*-http       Set HTTP server port.*

*-DNS        Set DNS ser IP address*

*-timezone   Set local timezone.*

*-cmcenter   Set Management Center IP Address.*

*-ipsharing Specify usage of an IP sharing dice and specify IP address.*

*Note:*

*Range of ip address setting (0.0.0.0 ~ 255.255.255.255).*

*DHCP client setting value (On=1, Off=0). If DHCP set to 'On',*

*Obtain a set of Internet configuration from DHCP server assigned.*

*SNTP mode (0=no update, 1=specify server IP, 2=broadcast mode).*

*Example:*

*ifaddr -ip 210.59.163.202 -mask 255.255.255.0 -gate 210.59.163.254*

*ifaddr -dhcp 1*

*ifaddr -sntp 1 210.59.163.254*

*ifaddr -ipsharing 1 210.59.163.254*

*ifaddr -timezone 8*

*ifaddr -dns primary secondary*

*usr/config\$*

---

**Parameters Usage:**

**-print          print current IP setting**

**-ip             assigned IP address for FXO GateWay**



- mask            internet subnet mask
- gate           IP default gateway
- dhcp           Dynamic Host Configuration (1 = ON; 0 = OFF)
- sntp           Simple Network Time Protocol (1 = ON; 0 = OFF) When  
SNTP function is activated, users have to specify a SNTP  
server as network time source. An example is  
demonstrated below:

---

```
usr/config$ ifaddr -sntp 1 10.1.1.1
```

---

while 10.1.1.1 stands for SNTP server's IP address.

- http           Change http port. User can change default HTTP port(80) to  
another one for security or NAT application.
- dns            Set DNS server IP address. User can set one or two sets of  
DNS server. (ifaddr -dns 1 "primary DNS server IP address" ;  
ifaddr -dns 2 "secondary DNS server IP address")
- timezone      Set timezone for FXO GateWay. User can set different time  
zone according to the location FXO GateWay is. For  
example, in Taiwan the time zone should be set as 8, which  
means GMT+8.
- cmcenter      Set management center IP address. IF user specifies  
management center IP address, FXO GateWay will send  
information to management center, let user can easily  
configure via management center interface.  
(sysconf -cmcenter "IP address of management center")

Note: management center is optional software to help user can easily  
configure products, please contact your reseller to know more  
about it.

- ipsharing      Specify usage of an IP sharing dice and specify IP address.  
If FXO GateWay is behind a IP-sharing , user can enable  
IP sharing function and specify public IP address of  
IP-sharing.
-

### 3.2.8 [time] command

When SNTP function of FXO GateWay is enabled and SNTP server can be found as well, type **time** command to show current network time.

---

```
usr/config$ time
Current time is THU JAN 01 05:29:23 1970
```

---

### 3.2.9 [ping] command

Use **ping** to test whether a specific IP is reachable or not.  
For example: if 192.168.1.2 is not existing while 210.63.15.32 exists.  
Users will have the following results:

---

```
usr/config$ ping 210.54.23.129
PING 210.54.23.129: 56 data bytes
no answer from 210.54.23.129
usr/config$ ping 192.168.4.121
PING 192.168.4.121: 56 data bytes
64 bytes from 192.168.4.121: icmp_seq=0. time=5. ms
64 bytes from 192.168.4.121: icmp_seq=1. time=0. ms
64 bytes from 192.168.4.121: icmp_seq=2. time=0. ms
64 bytes from 192.168.4.121: icmp_seq=3. time=0. ms
----192.168.4.121 PING Statistics----
4 packets transmitted, 4 packets received, 0% packet loss
round-trip (ms)  min/avg/max = 0/1/5
```

---

### 3.2.10 [greetrd] command

This command is for user to record their own greeting and analyze disconnect tone. If FXO GateWay can't hang up call and release line correctly, please use this function to analyze disconnect tone of PSTN side.

1. **Greeting Voice Record** : please follow instructions on screen ; first, call in line1 of FXO GateWay from PSTN side(now can't hear greeting)

and press “enter” to start record .After finishing recording, please press “enter” again to stop recording. Then choose “y/n” to replay and save or not.

---

*usr/config\$ greetrd*

=====

*Welcome to Voice Record/Analysis Mode*

-----

*1.Greeting Voice Record.*  
*2.Disconnect Tone Analysis.*  
*3.exit.*

-----

*Please input function(1~3): 1*

*1.Greeting Voice Record.*

*Please Dial-in "Line 1" and press "Enter" to start record!!!*

*Press "Enter" to stop record!!!*

*Starting record...*

*Stoped record!!!*

*New Greeting Voice Infomation*

-----

*File size : 0 (K bytes)*

*Totally time: 8 (seconds)*

*Do not Hang up the phone!!*

*Please wait for Writing...block 0*

*Please wait for Writing...block 1*

*Please wait for Writing...block 2*

---

*Replay New Greeting Voice?(y/n):*

---

2. **Disconnect Tone Analysis** : please follow instructions on screen ; first call in line1 of FXO GateWay from PSTN side(now can't hear greeting), hang up the phone and press "enter" to start record disconnect tone. Finally, choose "y/n" to save data analyzed or not. Notice that system will save one set of frequency analyzed and 4 set different on/off time in "busytone1","busytone2" , "reordertone1" , "reordertone2" (Please refer to tone command) .

If FXO GateWay still can't hang up call correctly, it could be tone cadence issue (on/off time). Please count on/off time and configure it into tone command.

---

*usr/config\$ greetrd*

*=====*  
*Welcome to Voice Record/Analysis Mode*  
*-----*

- 1.Greeting Voice Record.*
  - 2.Disconnect Tone Analysis.*
  - 3.exit.*
- 

*Please input function(1~3): 2*

*2.Disconnect Tone Analysis.*

*Please Dial-in "Line 1" and then Hang up the phone!!!*

*Press "Enter" to start record!!!*

*Waiting for Disconnect Tone from PSTN....*

*Disconnect Tone Detected...*

*Starting Record...*

*Set parameters to flash? (Y/N)*

---

### 3. **exit** : exit this command

---

```
usr/config$ greetrd
```

```
=====
```

```
      Welcome to Voice Record/Analysis Mode
```

```
-----
```

```
1.Greeting Voice Record.
```

```
2.Disconnect Tone Analysis.
```

```
3.exit.
```

```
-----
```

```
Please input function(1~3): 3
```

```
Are you sure to EXIT?!(y/n): y
```

```
usr/config$
```

---

### 3.2.11 [pbook] command

Phone Book function allows users to define their own numbers, which mapping to real IP address. It is effective only in peer-to-peer mode. When adding a record to Phone Book, users do not have to reboot the machine, and the record will be effective immediately.

---

```
usr/config$ pbook
```

```
Phonebook information and configuration
```

```
Usage:
```

```
pbook [-print [start_record] [end_record]]
```

```
pbook [-add [ip ipaddress] [name Alias] [e164 phonenumber]]
```

```
pbook [-search [ip ipaddress] [name Alias] [e164 phonenumber]]
```

```
pbook [-insert [index] [ip ipaddress] [name Alias] [e164 phonenumber]]
```

```
pbook [-delete index]
```

```
pbook [-modify [index] [ip ipaddress] [name Alias] [e164 phonenumber]]
```

```
    -print          Display Phonebook data.
```

---

- add        Add an record to Phonebook.*
- search    Search an record in Phonebook.*
- delete        Delete an record from Phonebook.*
- insert        Insert an record to Phonebook in specified position.*
- modify    Modify an exist record.*

*Note:*

*If parameter 'end\_record' is omitted, only record 'start\_record' will be display.*

*If both parameters 'end\_record' and 'start\_record' are omitted, all records will be display.*

*Range of ip address setting (0.0.0.0 ~ 255.255.255.255).*

*Range of index setting value (1~100),*

*Example:*

*pbook -print 1 10*

*pbook -print 1*

*pbook -print*

*pbook -add name Test ip 210.59.163.202 e164 1001*

*pbook -insert 3 name Test ip 210.59.163.202 e164 1001*

*pbook -delete 3*

*pbook -search ip 192.168.4.99*

*pbook -modify 3 name Test ip 210.59.163.202 e164 1001*

## Parameter Usages:

- print**        print out current contents of Phone Book. Users can also add *index number*, from 1 to 100, to the parameter to show specific phone number.  
*Note: <index number> means the sequence number in phone book. If users do request a specific index number in phone book ,FXO GateWay will give each record a automatic sequence number as index.*
- add**        add a new record to phone book. When adding a record, users have to specify **name**, **ip**, and **e164** number to complete the command.
- search**     search a record in phone book. The searching criteria can be **name**, **ip**, or **e164**.
- delete**     delete a specific record. “pbook –delete 3” means delete **index 3** record.
- insert**     add a new record and force to assign a specific index

- number for it.
- modify      modify an existing record. When using this command, users have to specify the record's index number, and then make the change.

### **Phonebook Rules:**

*To meet the requirements of communicating with trunk gateway or other applications, Phonebook has following characteristics to be noticed.*

*When the destination side is a terminal, for ex: IP Phone or soft phone, e164 number stands for exact destination phone number.*

*When the destination side is a gateway, for ex: T1/E1 gateway, e164 phone number stands only for gateway prefix. That is to say, users have to continue to dial destination number, following the prefix number. A example is as below:*

*A → FXO GateWay*

*In Phonebook, there's a record :*

<i>Index</i>	<i>Name</i>	<i>IP</i>	<i>E164</i>
<i>1</i>	<i>B_gateway</i>	<i>192.168.1.2</i>	<i>0</i>

-----

*B → E1 trunk gateway, which connects to PSTN with E1 PRI.*

*If users want to make a call to PSTN number “82265699”, they have to pickup one of the phone connected to FXO GateWay, and then dial “082265699”. After receiving the complete dialed number, Ediimax FXO GateWay will search for its Phone Book, find “0” as matched prefix, and then dial out to B’s IP address directly with destination e.164 (phone number) “82265699”. Pleased be noted that “0” is eliminated from FXO GateWay itself.*

*Note:1. Because of above characteristics, users have to take care of the number plan very well to avoid the numbering conflict. If users already defined “0” for specific trunk gateway, other terminal started with “0” shall be avoided, or the number will be routed to the trunk gateway defined “0”.*

*2. If user wants to set 2 sets of similar e164 such as 123 and 1234, please be careful configure 123 first, or it may cause problem when user dial 1234, FXO GateWay may dials out IP address of 123.*

*3.*

*(1) If called party is FXO product, please set e164 of pbook as e.164 of called party, and remember to set sysconf –drule in\_drop “e.164”(refer*

to 5.12.)in called party.

- (2) If called party is FXS product, please set e164 of pbook as prefix of called party, when dialing to different line of FXS product, please dial line number.

### 3.2.12 [pppoe]

Display PPPoE related information.

---

PPPoE dice information and configuration

Usage:

pppoe [-print][[-open]][[-close]

pppoe [-d on/off][[-id username]][-pwd password]

-print      Display PPPoE dice information.

-d          Enable(=1) or Disable(=0) dice.

-open      Open PPPoE connection.

-close     Disconnect PPPoE connection.

-id        Connection user name.

-pwd      Connection password.

-reboot    Reboot after remote host disconnection.

---

Paremeter Usage:

-print      print PPPoE status.

-d          Enable PPPoE Dial-up function

-open      Open the connection

-close     Close the connection

-id        Input the User name ID provided by ISP

-pwd      Input the User name password provided by ISP

-reboot    Reboot the PPPoE connection.

### 3.2.13 [ddns] command

Support the DDNS function

---

*usr/config\$ ddns*

*The dynamic DNS service information and configuration*

---



*Usage:*

*ddns [-print]*

*ddns [-enable 0/1]*

*ddns [-serve Address] [-hostname Name] [-id ID]*

*[-passwd Password]*

*[-checkip option] [-checkipsrv Address]*

*[-delay time]*

*[-force IP]*

<i>-print</i>	<i>Display Dynamic DNS information and configuration.</i>
<i>-enable</i>	<i>1:Enabled/0:Disable the dynmaic DNS service.</i>
<i>-server</i>	<i>Specify DDNS server address.</i>
<i>-hostname</i>	<i>Registered domain name.</i>
<i>-id</i>	<i>Registered account ID.</i>
<i>-passwd</i>	<i>Registered account password.</i>
<i>-checkip</i>	<i>1:Enabled/0:Disable check the host current IP address.</i>
<i>-checkipsrv1</i>	<i>Specify IP address check server.</i>
<i>-checkipsrv2</i>	<i>Specify secondary IP address check server.</i>
<i>-delay</i>	<i>Setting the service delay time.(1~59 minutes or 1~24 horus)</i>
<i>-force</i>	<i>Force execute the dynamic DNS service.</i>

*Example:*

*ddns -print*

*ddns -enable 1*

*ddns -server member.dyndns.org -hostname ipphone.dyndns.org*

*ddns -delay 30 m (30 minutes)*

*ddns -delay 12 h (12 hours)*

*ddns -force 11.22.33.44*

**Parameter Usages:**

<b>-enable</b>	<b>enable the DDNS function</b>
<b>-server</b>	<b>enter the server address of the DDNS server you use</b>
<b>-hostname</b>	<b>enter the domain name address which you get from the DDNS server</b>
<b>-id</b>	<b>key in your id</b>
<b>-passwd</b>	<b>key in your password</b>
<b>-checkIP</b>	<b>enable or disable the check current user's IP address</b>
<b>-checkIPsrv1</b>	<b>enter the IP address of the check server</b>

-checkIPsrv2 the secondary IP address of the check server

-delay service delay time

-force execute the DDNS function all the times

Note: Support DDNS Server: [www.3322.org](http://www.3322.org), [www.dyndns.org](http://www.dyndns.org).

### 3.2.14 [sysconf] command

This command displays the system information and configuration.

---

```
usr/config$ sysconf
```

*System information and configuration*

*Usage:*

```
sysconf [-service type] [-plan digits] [-2nddial flag]
        [-keypad dtmf] [-ringdet method] [-callalive flag]
        [-port s1 s2 s3 s4 ]
        [-seizure mode] [-2nddial switch]
        [-drule [in_filter str1] [in_drop str2] [in_insert str3]
               [out_filter str4] [out_drop str5] [out_insert str6]]
        [-askpin f] [-pincode [set1 pin1] [set2 pin2] [set3 pin3] [set4 pin4]]
sysconf -print
```

```
-print      Display system overall information and configuration.
-service    Specify gateway service type.
            (0: Dial in service, 1: Direct in service
            (2: HotLine/LineToLine 3: Transient service.)
-ringdet    Specify gateway ring detect method. (0:For 1st hardware version,
            1:For 2st hardware version.
-plan       Number of digits for dial plan. (any positive
            number.)
-port       Enable/Disable individual port.
-idto       The duration of two pressed digits in dial mode
-eod        Digit type of end of dialing. ( 0:No end of dialing, 1:[*] button,
2:[#] button )
-seizure    Choose line seizure mode (None/UCD).
-2nddial    Config GW to accept 2nd dtmf set. In this mode, dice
```

---

- from IP side needs to dial GW's E164, wait for PSTN dialtone, and then dial out.*
- drule        *Specify digits to be filtered/dropped/inserted before making an outgoing IP call or after recing an incoming IP call.*
  - askpin     *PIN code prompt before greeting.*  
               *0:Disable 1:Per Unit 2:Per Channel.*
  - ring        *Ring number before answer.*  
               *0:Disable, other is number of ring ( 1 ~ 5 ).*
  - keypad     *DTMF setting: 0=In-band, 1=H.245 Alphanumeric, 2=H.245 SignalType, 3=Q.931 UserInfo. , 4=RFC2833.*
  - pincode    *Specify PIN codes.*
  - cid         *Specify caller id type.(0:diabile 1: Bellcore)*
  - faxrdd     *FAX redundancy depth.(0 ~ 2)*

*Note:*

*Use character 'x' to delete the drule parameter.*

*For line seizure 0: None, 1: UCD.*

*For askpin: f=0: No, f=1: Yes, f=2: per channel*

*Hotline feature should be used together with:*

*\$sysconf -2nddial 0 (2nddial off)*

*\$h323 -mode 1 (peer-to-peer mode)*

*\$bureau -print for Hotline/LineToLine table configuration.*

*LineToLine feature should be used together with:*

*\$sysconf -2nddial 1 (2nddial on)*

*\$h323 -mode 1 (peer-to-peer mode)*

*\$bureau -print for Hotline/LineToLine table configuration.*

*Example:*

*sysconf -service 0 -plan 4 -port 1 1 1 1 0 0*

*sysconf -callalive 0 -keypad 0*

*sysconf -2nddial 0 -drule out\_filter 002 in\_insert x in\_drop 1*

*sysconf -askpin 1 -pincode set1 12345*

*usr/config\$*

---

**- service:**

**0 → Dial In Service**

in Dial In Service, FXO GateWay will pick up incoming calls from PSTN, play pre-recorded voice greeting or, and then have

users to make a 2<sup>nd</sup> dial to destination.

1/2 → HotLine Service (this feature must be implemented after set bureau –table command)

HotLine Service provides Hot Line function, which connects directly to pre-defined destination. For ex: if L1 of FXO GateWay is assigned to destination address 192.168.1.12 in Hot Line Mode. When users from PSTN make a call to L1 of FXO GateWay, it will directly connect to 192.168.1.12 without a 2<sup>nd</sup> dial.

*Note: In hotline service, must set FXO GateWay sysconf –2nddial 0 .*

LineToLine Service is like HotLine Service, but ask for a specific line number. For ex: if L1 of FXO GateWay is assigned to destination address 192.168.1.12 /Line4 in LineToLine Mode. When users from PSTN make a call to L1 of FXO GateWay, it will directly connect to 192.168.1.12 and choose Line4 to call out to PSTN. This is mostly applied to ITSP, who provides international VoIP solution.

*Note: In LineToLine service, must set FXO GateWay sysconf –2nddial 1 .*

1 → Transient service. If an call from IP to PSTN for landing (dial to PSTN phone), the IP side connection will be established only when an tip/ring polarity reversal was detected by FXO gateway. This service type must used in GK mode, fast start enabled on both endpoints. -2nddial off and use –drule command to drop the number of FXO itself.

- ringdet: to define ring detection method. (0 is for old hardware version; 1 for new hardware version)
- plan: It is for setting dial-numbering plan. While e164 number is three digits, the plan should be set as 3 or 0. The plan 0 is for any

positive digits use.

- port: This command can enable or disable individual port. The default value is set to enable all ports.
- idto: The duration of two pressed digits in dial mode
- eod: Digit type of end of dialing. ( 0:No end of dialing, 1:[\*] button, 2:[#]button )
- seizure: line seizure mode.

None (0) → when calling from IP side, choose L1 every time if it is available.

UCD (1) → when calls from IP side, choose L1 for the first time, and L2 for the 2<sup>nd</sup> time, (cyclic)

**Note:** Do not enable this function together with **group** (please refer to 5.18).

- 2nddial: This command is necessary for setting one time dial method use. While user would like to skip 2nddial process, FXO GateWay must close 2nddial and set as 0 (2nddial off). The default value is set as 1 (2nddial on).
- drule: This command only works while 2nddial is off. When user would like to make an outgoing call or receive an incoming call shortly, it is necessary to set the following three commands belonged to drule.
  - drop: drop the dial digit.
  - insert: insert the dial digit
  - filter: filter the dial digit.

**Note:**

1. out: Through FXO GateWay to dial out to another Gateway's e164 number. When making an outgoing call, it is necessary to set three commands in order, filter, insert then drop.  
Example: sysconf –drule out\_filter 002886 out\_insert 0 out\_drop 02
2. in: Through pass FXO GateWay in order to connect with PSTN / PBX side. When making an incoming call from other Gateway, the three commands is necessary to be set in order, drop, insert, then filter.  
Example: sysconf –drule in\_drop 002886 in\_insert 0 in\_filter 02
3. 3. While the specified digit would like to be deleted, use the character x

instead of any digits have configured.

-askpin:

0 → disables ASKPIN function

1 → enables ASKPIN function, and apply to the whole unit. every channel uses the same PINCODE.

2. → enables ASKPIN function, and apply to each channel respectively. every channel uses a different pincode.

-ring: To set when dial in FXO GateWay from PSTN side, FXO GateWay will pick the call immediately or rings for specific times before picks up.

0 → disable: pick up immediately

1-5 → times of ring before FXO GateWay picks up.

- keypad: keypad type when relay DTMF signal.

0 → In-Band

1 → h.245 alphanumeric

2 → h.245 signal type

3 → q.931 user info

4 → RFC2833.

- pincode: to specify 2 sets of pincode.

- cid : to disable or enable Bellcore format caller ID. If user enables this function, gateway will receive caller ID and pass it through. (Note: only FSK type of caller ID is available.)

- faxrdd: To add the redundancy depth in fax when the network is not in a good quality. (sysconf -faxrdd 2 ;0:default / 1:first lel in depth / 2:highest lel in depth)

Note: It's will take more bandwidth if the depth lel is the highest in 2.

### 3.2.15 [h323] command

This command is to configure H.323 related parameters.

---

```
usr/config$ h323
```

---

### *H.323 stack information and configuration*

*Usage:*

*h323*

*h323 [-gk ipaddress] [-multicast used] [-e164 number] [-alias h323id]  
[-rtp port] [-h245 port] [-ttl time] [-gkfind port] [-ras port]  
[-range [start num1] [end num2]]*

*h323 -print*

*-print      Display H.323 stack information and configuration.*  
*-mode      Configure as Gatekeeper mode or Peer-to-Peer mode.*  
*-gk        Gatekeeper ip address. (0.0.0.0 ~ 255.255.255.255)*  
*-gkname    Gatekeeper ID*  
*-dfgw      Default Gateway ip address. (0.0.0.0 ~ 255.255.255.255)*  
*-e164      IP side registered number (phone number).*  
*-alias     IP side registered H.323 alias (account name).*  
*-gkdis     Gatekeeper auto discovery (On=1, Off=0).*  
*-rtp        RTP port number (1024~65532).*  
*-h225      H225 RAS port number (N/A).*  
*-q931      H225 Signal port number (N/A).*  
*-ttl        RAS TTL time (0~3600 second).*  
*-gkfind    Gatekeeper finding port (1024~65535).*  
*-gwtype    Register as Gateway (1) or Terminal (0) type*  
*-ras        Gatekeeper RAS port (1024~65535).*  
*-range     Dynamically allocated port range (1024~65535).*  
*-respto    Max waiting time for 1st response to a new call (1~200).*  
*-connto    Max waiting time for call establishment after receiving 1st  
            response of a new call (1~20000).*

*Note:*

*H.245 port configuration is not available now.*

*Options -gk -e164 -alias -multi -ttl -gkfind -ras are ignored when  
RAS mode is configured as Peer-to-Peer mode.*

*Example:*

*h323 -gk 210.59.163.171 -e164 0 -alias fxo*

*h323 -mode 1*

### **Parameters Usage:**

**-print      print current h323 related settings**  
**-mode      alternatives for gatekeeper or peer-to-peer mode**

- (0=gatekeeper mode; 1=peer-to-peer mode). If users select gatekeeper mode, a extra gatekeeper is need when FXO GateWay is in operation.
- gk to assign gatekeeper's IP address when FXO GateWay is in gatekeeper mode.
  - gkname to assign Gatekeeper ID when FXO GateWay is in gatekeeper mode.
  - dfgw to set IP address of default gateway, this function is the same as Microsoft NetMeeting.
- A.To implement this feature both endpoints must be under peer-to-peer mode.
- B.If the other endpoint is FXO products, such as -xFXO, which have to set as **sysconf -2nddial 0** to make one-stage dialing.
- From PSTN side dial in FXO GateWay, when hearing greeting user can dial remote PSTN number under default gateway, FXO GateWay will automatically dial to default gateway, then default gateway will dial this number to PSTN side.
  - For example, user wants to dial from FXO GateWay A to ext.888 under FXO GateWay B, user only have to dial 888 after hearing greeting of FXO GateWay .
- C.If the other endpoint is FXS products such as -2FXS : From PSTN side dial in FXO GateWay, when hearing greeting user can dial line number of -2FXS.
- For example ,user wants to dial from FXO GateWay to -2FXS , the configuration of -2FXS is **h323 -line1 101 -line2 102** , user can press 101 or 102 dialing to line1 or line2 of -2FXS after hearing greeting of FXO GateWay.
- e164 e164 number, which is registered as phone number in gatekeeper.
  - alias h323 ID, a identification in h323 world for other parties' recognition. The field might be used as a key of authorization or accounting in some VoIP application. It is recommended to assign a special name, or it might conflict with other dices.



- gkdis      Switch ON or OFF gatekeeper discovery function (1 = ON; 0 = OFF). When it's ON, FXO GateWay will send GRQ with GK ID to default gatekeeper. If the GK ID didn't matched, GW will send GRQ with GK ID in multicast.
- rtip      to allocate RTP port range—NOT RECOMMENDED. This may be used when RTP port range conflicts with Firewall policy.
- h225      Configure H225 RAS port number manually.(N/A).
- q931      Configure H225 Signal port number manually.(N/A).
- ttl      to set timer for TTL(Time To Live). FXO GateWay would send RRQ, with keepAlive, to gatekeeper periodically according to TTL timer.
- gkfind    gatekeeper finding port. Port number, which FXO GateWay uses it to discover a gatekeeper. Default value is 1718.
- gwtype    to set FXO GateWay register mode as terminal or gateway,0 as terminal 1 as gateway. Please notice that if set FXO GateWay as terminal mode, must set sysconf -2nddial 1(refer to 5.12).
- ras      to set default gatekeeper RAS port number. Default value, 1719, is well-known port for RAS communication.
- range    to allocate dynamic port range, which FXO GateWay might be using.
- respto    response timeout. Max waiting time for 1st response to a new call (1~200).
- connto    connection timeout. Max waiting time for call establishment after receiving 1st response of a new call (1~20000).

### 3.2.16 [voice] command

The voice command is associated with the audio setting information. There are four voice codecs (g.729a optional) supported by FXO GateWay.

---

*Voice codec setting information and configuration*

*Usage:*

*voice [-send [G723 ms] [G711A ms] [G711U ms] [G729A ms] [G729 ms] ]*

---

```
[-volume [voice lel] [input lel] [dtmf lel]]
[-nscng G723 used] [-echo used] [-mindelay used]
[-maxdelay used]
```

*voice -print*

*voice -priority [G723] [G711A] [G711U] [G729A] [G729]*

```
-print      Display voice codec information and configuration.
-send       Specify sending packet size.
            G.723  (30/60 ms)
            G.711A (20/40/60 ms)
            G.711U (20/40/60 ms)
            G.729A (20/40/60 ms)
            G.729  (20/40/60 ms)
-priority   Priority preference of installed codecs.
            G.723
            G.711A
            G.711U
            G.729A
            G.729
-volume     Specify the following lels:
            voice volume (0~63, default: 32),
            input gain (0~63, default: 32),
            dtmf  volume (0~31, default: 27),
-nscng      No sound compression and CNG. (G.723.1 only, On=1, Off=0).
-echo       Setting of echo canceller. (On=1, Off=0, per port basis).
-mindelay   Setting of jitter buffer min delay. (0~150, default: 100).
-maxdelay   Setting of jitter buffer max delay. (0~150, default: 150).
```

*Example:*

```
voice -send g723 60 g711a 60 g711u 60 g729a 60 g729 60
voice -volume voice 20 input 32 dtmf 27
voice -echo 1 1 1 1 1 1
```

*usr/config\$*

## Parameters Usage:

```
-print      print current voice information and configurations.
-send      to define packet size for each codec. 20/40/60ms means to
            send a voice packet per 20/40/60 milliseconds. The smaller
```

the packet size, the shorter the delay time. If network is in good condition, smaller sending packet size is recommended. In this parameter, 20/40/60ms is applicable to G.711u/a law, and G.729a codec, while 30/60/90ms is applicable to G.723.1 codec.

- priority      codec priority while negotiating with other h323 dice. This parameter determines the listed sequence in h.245 TCS message. The codec listed in left side has the highest priority when both parties determining final codec.
- volume      There are three adjustable value. **voice volume** stands for volume, which can be heard from FXO GateWay side; **input gain** stands for volume, which the opposite party hears. **dtmf** volume stands for DTMF volume/lvl, which sends to its own Line1 or Line2.
- nscng      silence suppression and comfort noise generation setting (1 = ON; 0 = OFF). It is applicable to G.723 codec only. An example is demonstrated below:

---

```
usr/config$ voice -nscng g723 1
```

---

- mindelay    the minimum jitter buffer size. (Default value= 90 ms)
- maxdelay    the minimum jitter buffer size. (Default value= 150 ms)

---

```
usr/config$ voice -mindelay 90 -maxdelay 150 -optfacor 7
```

---

- echo      activate each canceller (1 = ON; 0 = OFF).

*Note: be sure to know well the application before you change **voice** parameters because this might cause incompatibility.*

### 3.2.17 [tos] command

TOS service allows users to achieve QoS on IP network.

*usr/config\$ tos*

*IP Packet ToS(type of Service)/Differentiated Service configuration*

*Usage:*

*tos [-rtptype dscp]*

*tos [-sigtype dscp]*

*tos -print*

*Example:*

*tos -rtptype 7 -sigtype 0*

*usr/config\$*

---

Parameter Usages:

-print : display current TOS values configurations.

-sigtype      configure DSCP value of signaling packets from 0 to 63

-rtptype      configure DSCP value of RTP packets from 0 to 63

Note:

1. Users should be aware that TOS is effective only when network dices (for ex: router, switch.. etc.) support TOS.
2. tos -rtptype 14 -sigtype 10 is top priority of package.

### 3.2.18 [tone] command

Tone detection of FXO GateWay is configurable if the bureau line is connected to PABX or PSTN. Users can refer to “**greetrd**” command for tone recording and analysis. Sometimes the frequencies might shift from standard lel. In such a situation, users have to adjust the tone value manually using this command.

---

*usr/config\$ tone*

*Setup of call progress tones*

*Usage:*

---

*tone -toneX LowFreq HighFreq LowFreqLel HighFreqLel TOn1 TOff1 TOn2  
TOff2*

*tone -print*

*Note:*

*toneX has the following possibility:*

*busy1 busy2 reorder1 reorder2 ringtone1 ringtone2 dialtone*

*Example:*

*tone -busy1 400 0 8 0 50 50 0 0*

*tone -dialtone 400 0 19 0 25 25 0 0*

---

### **3.2.19 [support] command**

This command provides some extra functions that might be needed by users.

-----  
----

*usr/config\$ support*

*Special Voice function support manipulation*

*Usage:*

*support[-tunnel enable]*

*support -print*

*-t38           T.38(FAX) enabled/disabled.*

*-t38ecm       T.38(FAX) ECM enabled/disabled.*

*-fstart       Fast start enabled/disabled.*

*-tunnel       H245 Tunneling enabled/disabled.*

*-h245fs       H245 seperate channel after faststart.*

*Example:*

*support -t38 1*

*support -t38ecm 1*

*support -fstart 1*

*support -tunnel 0*

*support -h245fs 1*

*usr/config\$*

---

## Parameter Usages:

- print            print current setting in **support** command.
- t38            to switch ON/OFF (1 = ON; 0 = OFF) T.38 function. T.38 function is for FAX. If user will use FAX machines, please switch on T.38 function.
- t38ecm        to disable/enable T.38 error correction mode. This mode support error correction during fax high-speed mode.
- fstart        to switch ON/OFF (1 = ON; 0 = OFF) FastStart function. Fast Start function can shorten the connection time if the opposite party also support FastStart.
- tunnel        to switch ON/OFF (1 = ON; 0 = OFF) H.245 tunneling function. If the function is ON, FXO GateWay will send H.245 (Call Control messages) via H.225's (Call Signal messages) link. The function is effective only when both side support h245 tunnel.
- h245fs        to set if open H.245 separate channel after fast start or not. (1 = ON; 0 = OFF)

*Note:*

1. *it is not recommended to change the value in this command, only if users do know well the application. This might cause incompatibility with other dices.*
2. *If user wants to use T.38 fax under fast start mode, please make sure "h245fs" function is enabled, or fax can't work normally.*

**3.2.20 [group] command**

This command is for grouping 4 ports of FXO GateWay. If users need to register at least 2 numbers separately to gatekeeper, then this command is needed for such an application.

-----  
*usr/config\$ group*

*PSTN side grouping information and configuration*

*Usage:*

*group -print / -enable / -disable /*

---

```

        -number group_number -pattern pattern_numbers -e164 e164_numbers
    /
    -pattern pattern_numbers -e164 e164_numbers /
    -e164 e164_numbers

```

*Comment:*

```

-print          : Print current group configuration
-enable         : Enable PSTN Grouping
-disable        : Disable PSTN Grouping
-number         : Set number of divided groups
-pattern        : Set number of members in each group
-e164           : Set E.164 number for each group

```

*Example:*

```

group -print
group -enable
group -disable
group -number 2 -pattern 3 3 -e164 01 02
group -pattern 3 1 -e164 100 200
group -e164 11 22

```

---

#### Parameter Usages:

- print : display current grouping information
- enable : enable grouping function
- disable : disable grouping function
- number : set how many groups will be divided
- pattern : set how many members in each group
- e164 : set e164 of each group

For ex: if users need to divide FXO GateWay into L1 in the 1<sup>st</sup> group, and L2 in the 2<sup>nd</sup> group), and have them register to gatekeeper separately (e164=100 for 1<sup>st</sup> group; e164=200 for 2<sup>nd</sup> group). They have to use the following command:

---

```
usr/config$ group -pattern 1 3 -e164 100 200
```

---

Note: GROUP function is effective only in gatekeeper mode.

### 3.2.21 [bureau] command

Type **bureau** to display the command usage.

---

```
usr/config$ bureau
```

*Bureau line setting information and configuration*

*Usage:*

```
bureau [-pstn number] [-hold used] [-hotline [Port DestIP TELnum]]
```

```
bureau -print
```

- print      Display Bureau line information and configuration.*
- pstn      PSTN number (per port basis). This number is used to display  
as a caller ID when the caller ID is not available.  
The maximum digit length is 32.*
- hold      Specify the hold tone generation (using PCM file). (On/Off)  
Setting value (On=1, Off=0).*
- table      Set Hot line/Line To Line information. (Port range: 1~6)*

*Note:*

*Hotline feature should be used together with:*

```
$sysconf -service 2 (HotLine service)
```

```
$sysconf -2nddial 0 (2nddial off)
```

```
$h323 -mode 1 (peer-to-peer mode)
```

*Line To Line feature should be used together with:*

```
$sysconf -service 2 (HotLine service/Line To Line )
```

```
$sysconf -2nddial 1 (2nddial on)
```

```
$h323 -mode 1 (peer-to-peer mode)
```

*Example:*

```
bureau -pstn 2011 2012 2013 2014 2015 2016
```

```
bureau -hotline 1 192.168.4.69 628 2 192.168.4.200 999
```

---

```
usr/config$
```

**Parameter Usages:**

- print: display bureau line information and configuration.



---

```
usr/config$ bureau -print
```

*Bureau line setting relate information*

*PSTN number : 2011 2012 2013 2014 2015 2016*

*Hold tone generation : On*

*Hot line / Line to Line table*

---

<i>Port</i>	<i>Destination Address</i>	<i>Remote TEL/CHANNEL</i>
<hr/>		
<i>1</i>	<i>192.168.4.69</i>	<i>628</i>
<i>2</i>	<i>192.168.4.69</i>	<i>628</i>

---

- pstn: PSTN number (per port basis). This number is used to display as a caller ID when the caller ID is not available. The maximum digit length is 32.
- hold: while the terminals support H.450 **hold** function, the FXO GateWay will play the hold tone to PSTN side.
- table: Set Hot line/LineToLine destination IP and e164 numbers information.
- hotline : the same function with table command.

### 3.2.22 [prefix] command

This function can do digits replacement of incoming call from IP side or PSTN side.

---

```
usr/config$ prefix
```

*Prefix setting information and configuration*

*Usage:*

*prefix [-pstnrule index oldnumber newnumber (index = 1 ~ 6)]*

*[-iprule index oldnumber newnumber (index = 1 ~ 6)]*

---

*prefix -print*

*-print      Display prefix information and configuration.*

*-pstnrule    Set PSTN incoming prefix rule information.*

*-iprule      Set IP incoming prefix rule information.*

*Example:*

*prefix -pstnrule 1 2 8862 : prefix 2 will be replaced with 8862*

---

#### Parameter Usages:

- print      print current setting in **prefix** command.
- pstnrule    to do digit replacement of incoming call from PSTN side. Ex, to set **prefix -pstnrule 1 123 456** , which means the first set of PSTN side rule is: IF user press 123888 after dialing in FXO GateWay from PSTN side ,the real number dialed out will become 456888.
- iprule      to do digit replacement of incoming call from IP side. Ex, to set **prefix -iprule 1 456 789** , which means the first set of IP side rule is: IF user press 456000 after dialing in    FXO GateWay from PSTN side ,the real number dialed out will become 789000.

### 3.2.23 [rom] command

ROM file information and firmware upgrade function.

---

*usr/config\$ rom*

*ROM files updating commands*

*Usage:*

*rom [-app] [-dsptest] [-dspcore] [-dspapp] [-rbpcm] [-htpcm]*

*[-greeting] -s TFTP/FTPserver ip -f filename*

*rom [-method mode] [-ftp username password]*

*rom -print*

*-print            show versions of rom files. (optional)*

*-app            update main application code(optional)*

*-boot            update main boot code(optional)*

---

```
-boot2m  update 2M code(optional)
-dsptest  update DSP testing code(optional)
-dspcore  update DSP kernel code(optional)
-dspapp   update DSP application code(optional)
-rbpcm     update RingBack Tone PCM file(optional)
-htpcm     update Hold Tone PCM file(optional)
-greeting update Greetings PCM file(optional)
-askpin    update AskPin file(optional)
-s         IP address of TFTP/FTP server (mandatory)
-f         file name(mandatory)
-method   download via TFTP/FTP (TFTP: mode=0, FTP: mode=1)
-ftp      specify username and password for FTP
```

Note:

*This command can run select one option in 'app', 'dsptest', 'dspcore', 'dspapp', and 'rbpcm'.*

Example:

```
rom -method 1
rom -ftp vwusr vwusr
rom -app -s 192.168.4.101 -f app.bin
```

### Parameter Usages:

- print            show versions of all rom files
- app, boot, dsptest, dspcore, dspapp    to update main Application program code, Boot code, DSP testing code, DSP kernel code, or DSP application code.
- boot2m    **boot2m** parameter let users to upgrade the whole system flash, including all the firmware that mentioned above. If 2M rom file update is executed, **users have to set again the MAC address of FXO GateWay or it will cause conflict on Ethernet because the original MAC address is erased during 2M ROM file upgrading.**

Note: To set mac address please key in command setmac:(when key in MAC address ,press enter each time after key in two characters):

```
usr/config$ setmac
```

*- enter mac address (xxxxxxxxxxxx):*

*0001a8002baa*

*- the mac address is 00 01 a8 00 2b aa*

*- if mac address is correct, please press 'y' to  
setup configuration, else press 'n' to continue*

*y*

- 
- greeting     The greeting file can be updated by users. The attributes of sound file should complied to:  $\mu$ -law, 8000 Hz , 8 bit, Mono, 7 kb/s
  - askpin       update ASKPIN sound file. This is the greeting sound that when asking for pincode.
  - s             to specify TFTP server's IP address when upgrading ROM files.
  - f             to specify the target file name, which will replace the old one.
  - method       to decide using TFTP or FTP as file transfer server. "0" stands for TFTP, while "1" stands for FTP.
  - ftp           if users choose FTP in above item, it is necessary to specify pre-defined username and password when upgrading files.

### 3.2.24 [passwd] command

For security concern, users have to input the password before entering configuration mode.

---

*usr/config\$ passwd*

*Password setting information and configuration*

*Usage:*

*passwd -set Loginname Password*

*Note:*

*Loginname can be only 'root' or 'administrator'*

*Example:*

*passwd -set root 2fxo*

---

Parameter Usages:

-passwd <login name> <password>

*Note: <login name> can be “root” or “administrator” only. “root” and “administrator” have the same authorization, except 3 commands that can be executed by “root” only – “passwd –set root”, “rom –boot”, and “flash –clean”*